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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,703	02/02/2004	Monica Pacheco-Tougas	EH-10624 (02-156-US2)	1305

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EXAMINER

KIM, TAE JUN

ART UNIT

PAPER NUMBER

3746

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/770,703

Applicant(s)

PACHECO-TOUGAS ET AL.

Examiner

Ted Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 13-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Priority

1. It is noted that this application appears to claim subject matter disclosed in prior Application No. 10/147,266, filed 5/14/02. A reference to the prior application must be inserted as the first sentence of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should be included.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing

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date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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2. Claims 1-6, 9, 10, 13-18, 20-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Pearce (5,509,270). Pearce teaches an inner & outer support shell 12, 14 defining an annular combustion chamber 22, a bulkhead assembly at a front portion of the combustion chamber including a bulkhead support shell 16 and at least one panel 36 having a first, cool side (same side as 42) and a second, hot side facing the combustion gases, a plurality of panel holes 52 extend from the first side to the second side and an inner circumferential rail 40 on the first side divide the first side into a first cavity region 42 containing holes 52 and a second cavity region 42 containing a plurality of panel holes 52. Note that Fig. 1 show there being an inner and outer circumferential rail and thus two chambers 42. While only one chamber 42 is shown in Fig. 3a, the specification makes clear that multiple rails/flanges 40 are present for each heatshield/panel which form multiple chambers (col. 3, lines 7-19).

“The heatshield 36 is spaced a short distance from the bulkhead 16 by flanges 40. **The flanges may arranged to form separate chambers 42** behind each heatshield segment or in effect an annular chamber in which the spaces immediately behind the segments are in free communication with each other. The flanges may be formed integrally on the upstream face of the heatshield segment 36, or alternatively on the downstream face of the bulkhead 16. Apertures 44 are formed in the bulkhead 16 to provide passages between the plenum chamber 20 and the spaces 42 between the bulkhead and heatshield. There may be as many of these apertures 44 as necessary of suitable configuration to provide even distribution of cooling air to the rear face of the heatshield 36.”

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The holes are inclined tangentially and axially for swirl (col. 4, lines 1-10). Inner and outer lips are shown in Fig. 1 (see markings). Fuel injector 26 and fuel injector guide 34 project through the central opening and a central lip 40a (Fig. 3a) defines the first cavity region comprising a "sealed" chamber with the inner rail 40 when they are placed in contact with the bulkhead support shell 16. Note that the chamber is "sealed" in an analogous manner as applicant's even though air escapes from the chamber due to the use of panel holes. Impingement holes 44 are also shown.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7, 9, 10, 13-18, 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pearce (5,509,270) in view of Richardson (5,271,219). Pearce teaches an inner & outer support shell 12, 14 defining an annular combustion chamber 22, a bulkhead assembly at a front portion of the combustion chamber including a bulkhead support shell 16 and at least one panel 36 having a first, cool side (same side as 42) and a second, hot side facing the combustion gases, a plurality of panel holes 52 extend from the first side to the second side and an inner circumferential rail 40 on the first side divide the first side into a first

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cavity region 42 containing holes 52 and a second cavity region 42 containing a plurality of panel holes 52. Note that Fig. 1 show there being an inner and outer circumferential rail and thus two chambers 42. While only one chamber 42 is shown in Fig. 3a, the specification makes clear that multiple rails/flanges 40 are present for each heatshield/panel which form multiple chambers (col. 3, lines 7-19).

“The heatshield 36 is spaced a short distance from the bulkhead 16 by flanges 40. The flanges may arranged to form separate chambers 42 behind each heatshield segment or in effect an annular chamber in which the spaces immediately behind the segments are in free communication with each other. The flanges may be formed integrally on the upstream face of the heatshield segment 36, or alternatively on the downstream face of the bulkhead 16. Apertures 44 are formed in the bulkhead 16 to provide passages between the plenum chamber 20 and the spaces 42 between the bulkhead and heatshield. There may be as many of these apertures 44 as necessary of suitable configuration to provide even distribution of cooling air to the rear face of the heatshield 36.”

The holes are inclined tangentially and axially for swirl (col. 4, lines 1-10). Inner and outer lips are shown in Fig. 1 (see markings). Fuel injector 26 and fuel injector guide 34 project through the central opening and a central lip 40a (Fig. 3a) defines the first cavity region comprising a “sealed” chamber with the inner rail 40 when they are placed in contact with the bulkhead support shell 16. Note that the chamber is “sealed” in an analogous manner as applicant’s even though air escapes from the chamber due to the use of panel holes. Impingement holes 44 are also shown. The first and second side being substantially planar from an outer

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edge to an inner edge. While only one chamber 42 is shown in Fig. 3a, the specification makes clear that multiple rails/flanges 40 are present for each heatshield/panel which form multiple chambers (col. 3, lines 7-19) and multiple rails enclosing chambers are shown in Figure 1. Hence, it would have been obvious to one of ordinary skill in the art to employ multiple chambers 42 with panel holes, radially inward and outward of the circumferential rail. Alternately, Richardson teaches a bulkhead panel 32 with a circumferential rail 38 that separates the annular space between the bulkhead and the panel into a first cavity region inside of 38 and a second cavity region outside of 38 (see col. 3, lines 30-38). It would have been obvious to one of ordinary skill in the art to employ a circumferential rail to separate the bulkhead panel into an inner cavity and outer cavity, as taught by Richardson, in order to use multiple cavities. Note that this is also totally consistent with the teachings of Pearce as Pearce allows for multiple rails/flanges to be employed to divide the chamber in various ways. As for the swirl being clockwise, Pearce places no restriction on the direction of swirl and there are only two directions – clockwise or counterclockwise available. Hence, it would have been obvious to one of ordinary skill in the art to employ the clockwise direction, as an obvious matter of finding the workable orientations suitable for use in the art.

5. Claims 1-7, 9, 10, 13-18, 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pearce (5,509,270) in view of Sandelis (5,941,076).

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Pearce teaches an inner & outer support shell 12, 14 defining an annular combustion chamber 22, a bulkhead assembly at a front portion of the combustion chamber including a bulkhead support shell 16 and at least one panel 36 having a first, cool side (same side as 42) and a second, hot side facing the combustion gases, a plurality of panel holes 52 extend from the first side to the second side and an inner circumferential rail 40 on the first side divide the first side into a first cavity region 42 containing holes 52 and a second cavity region 42 containing a plurality of panel holes 52. Note that Fig. 1 show there being an inner and outer circumferential rail and thus two chambers 42. While only one chamber 42 is shown in Fig. 3a, the specification makes clear that multiple rails/flanges 40 are present for each heatshield/panel which form multiple chambers (col. 3, lines 7-19).

“The heatshield 36 is spaced a short distance from the bulkhead 16 by flanges 40. The flanges may arranged to form separate chambers 42 behind each heatshield segment or in effect an annular chamber in which the spaces immediately behind the segments are in free communication with each other. The flanges may be formed integrally on the upstream face of the heatshield segment 36, or alternatively on the downstream face of the bulkhead 16. Apertures 44 are formed in the bulkhead 16 to provide passages between the plenum chamber 20 and the spaces 42 between the bulkhead and heatshield. There may be as many of these apertures 44 as necessary of suitable configuration to provide even distribution of cooling air to the rear face of the heatshield 36.”

The holes are inclined tangentially and axially for swirl (col. 4, lines 1-10). Inner and outer lips are shown in Fig. 1 (see markings). Fuel injector 26 and fuel

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injector guide 34 project through the central opening and a central lip 40a (Fig. 3a) defines the first cavity region comprising a “sealed” chamber with the inner rail 40 when they are placed in contact with the bulkhead support shell 16. Note that the chamber is “sealed” in an analogous manner as applicant’s even though air escapes from the chamber due to the use of panel holes. Impingement holes 44 are also shown. The first and second side being substantially planar from an outer edge to an inner edge. While only one chamber 42 is shown in Fig. 3a, the specification makes clear that multiple rails/flanges 40 are present for each heatshield/panel which form multiple chambers (col. 3, lines 7-19) and multiple rails enclosing chambers are shown in Figure 1. Hence, it would have been obvious to one of ordinary skill in the art to employ multiple chambers 42 with panel holes, radially inward and outward of the circumferential rail. Alternately, Sandelis shows that it is old and well known in the art to employ a circumferential rail near 13 separating multiple chambers with panel holes. It would have been obvious to one of ordinary skill in the art to employ a circumferential rail separating multiple chambers, as taught by Sandelis, in order to provide for the cooling of panel of Fig. 1. As for the swirl being clockwise, Pearce places no restriction on the direction of swirl and there are only two directions – clockwise or counterclockwise available. Hence, it would have been obvious to one of ordinary skill in the art to employ the clockwise direction, as an obvious matter of finding the workable orientations suitable for use in the art.

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6. Claims 1-4, 8-10, 13-20, 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stastny (6,497,105) in view of either Richardson (5,253,471) or Sandelis (5,941,076). Stastny teaches an inner & outer support shell defining an annular combustion chamber, a bulkhead assembly at a front portion of the combustion chamber including a bulkhead support shell 18 and at least one panel 34 having a first, cool side and a second, hot side facing the combustion gases, a plurality of panel holes 58 extend from the first side to the second side and an inner circumferential rail 42 on the first side divide the first side into a first cavity region 42 containing holes 58 and a second cavity. Fuel injector 24 and fuel injector guide 74 project through the central opening and a central lip 41 defines the first cavity region comprising a "sealed" chamber with the inner rail 42 when they are placed in contact with the bulkhead support shell 18. Note that the chamber is "sealed" in an analogous manner as applicant's even though air escapes from the chamber due to the use of panel holes. Impingement holes 60 are also shown. Stastny does not show cooling holes in the panel in the first and second regions. Richardson '471 teaches cooling holes 42, 47 in the panel in first and second regions with impingement holes 38, 39 supplying each region. Note that Richardson '471 is specifically discussed in col. 1, lines 50+ in the background of the invention for Stastny. Sandelis also teaches cooling holes 31, 18 in the panel in first and second regions with impingement holes 30, 16 supplying each region. It would have been obvious to one of ordinary skill in the

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art to employ cooling holes in the panel of Stastny, in each region relative to the inner circumferential rail, in order to cool the entire panel and/or prolong its life or reduce replacement costs. Posts 54, 56 attach the panel to the bulkhead shell.

7. Claims 5-7, 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stastny (6,497,105) in view of either Richardson (5,253,471) or Sandelis (5,941,076), as applied above, and further in view of Pierce (5,509,270). Stastny teaches various aspects of the claimed invention but do not teach the cooling holes are inclined to produce swirl. Pierce teaches a panel where the holes are inclined tangentially and axially for swirl (col. 4, lines 1-10). As for the swirl being clockwise, Pearce places no restriction on the direction of swirl and there are only two directions – clockwise or counterclockwise available. Hence, it would have been obvious to one of ordinary skill in the art to employ the clockwise direction, as an obvious matter of finding the workable orientations suitable for use in the art. It would have been obvious to one of ordinary skill in the art to incline the cooling holes to produce swirl, in order to enhance the cooling flow.

8. Claims 8, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pearce (5,509,270), as applied in any of the three ways above, and further in view of Richardson (5,271,219). Pearce teaches various aspects of the claimed invention but does not show the attachments posts. However, it is recognized that some form of attachment means would be required. Richardson teaches the use of attachment posts/bolts 33 that are integral with the bulkhead panel 32. It would

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have been obvious to one of ordinary skill in the art to one of ordinary skill in the art to employ posts/bolts, for attaching the panel, as a conventional and well known attachment scheme for panels.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-10, 13-15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,751,961. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims are broader than the patented claims which contain all the elements of the instant invention. Hence the more specific patented claims would "anticipate" the broader claims of the instant application. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993). Such broader claims in the application can also be said to "dominate"

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the more narrow claims in the parent which contain additional elements. *In Re Braithwaite*, 154 USPQ 38 at 40 (CCPA 1967).

11. Claims 16-28 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,751,961 in view of any of the Pearce et al (5,509,270) or Stastny (6,497,105) or Richardson (5,253,471). Claims 1-12 of U.S. Patent No. 6,751,961 recite most of the claim limitations but do not specifically claim the inner support shell, the outer support shell, a bulkhead support shell, impingement holes and other conventional features. These other features are recited in the prior art applied above and their precise teachings will not be repeated again for conciseness. It would have been obvious to one of ordinary skill in the art to employ the inner support shell, the outer support shell, a bulkhead support shell, impingement holes and other conventional features, as recited in claims 16-28 of the application, as being conventional features or otherwise required for use in such bulkhead cooling panel assemblies.

Response to Arguments

12. Applicant's arguments filed 2/2/04 have been fully considered but they are not persuasive. Applicant's argues "in Pearce, both cavity regions (42) are located radially inward of the circumferential rail (40). In fact, the two cavity regions (42) are the same circular region." However, applicant's arguments are mislead

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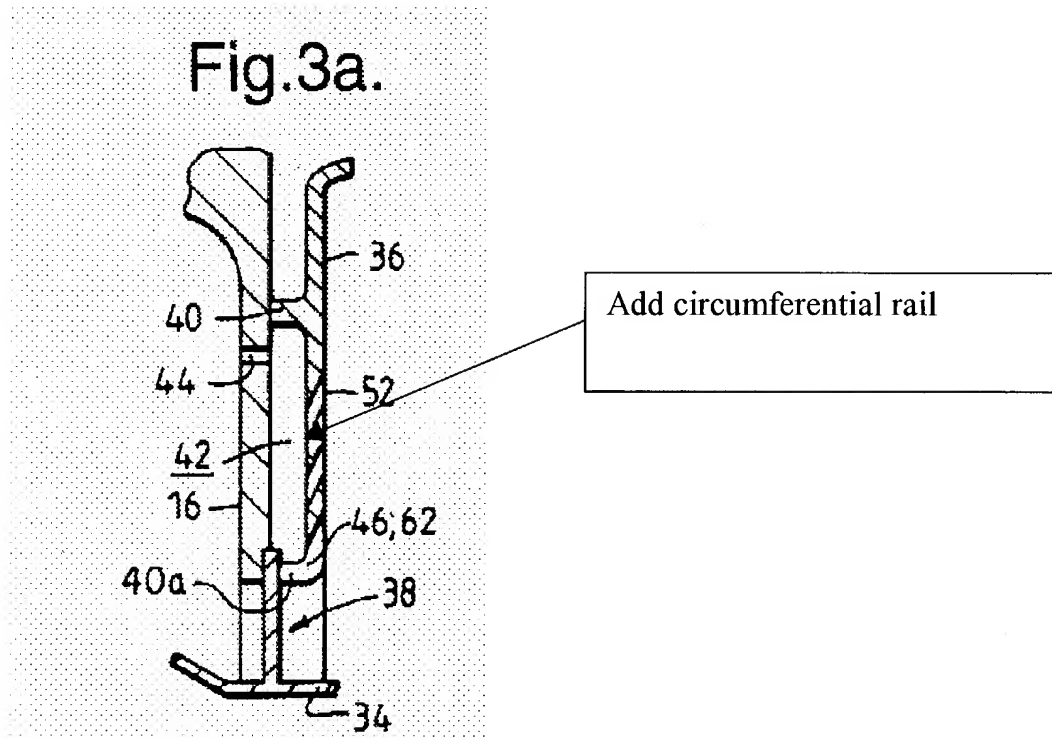
because in Pearce, there is not a single circumferential rail/flange as argued by applicant but there are a plurality of rails/flanges. Pearce explicitly teaches

“The heatshield 36 is spaced a short distance from the bulkhead 16 by flanges 40. **The flanges may arranged to form separate chambers 42** behind each heatshield segment or in effect an annular chamber in which the spaces immediately behind the segments are in free communication with each other. The flanges may be formed integrally on the upstream face of the heatshield segment 36, or alternatively on the downstream face of the bulkhead 16. Apertures 44 are formed in the bulkhead 16 to provide passages between the plenum chamber 20 and the spaces 42 between the bulkhead and heatshield. There may be as many of these apertures 44 as necessary of suitable configuration to provide even distribution of cooling air to the rear face of the heatshield 36.”

(see col. 3, lines 7-19)

Consequently, it is clear that there can be a plurality of circumferential rails/flanges in light of the plural usage and in light of the further teachings in that paragraph and when also considering Figure 1 has a plurality of circumferential rails/flanges illustrated.

Applicant's arguments regarding the combination of Pearce and Sandelis are also not persuasive. The combination of Sandelis with Pearce would involve placing an additional circumferential rail within rail 40 illustrated in Figure 3.



Consequently, applicant relies on an different basis for interpreting the reference than the Examiner. Furthermore, combination of Sandelis with Pearce would not require the formation of a non-planar panel but since Pearce's panel is already planar, the incorporation of the cooling holes and circumferential rail would be done to a planar panel. In order to address applicant's concerns on this issue, Richardson 5,271,219 is also hereby applied.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 703-308-2631. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

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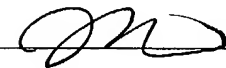
The fax numbers for the organization where this application is assigned are

703-872-9306 for Regular faxes and 703-872-9306 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu, can be reached on 703-308-2675.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861.

General inquiries can also be directed to Technology Center Customer Service Office at 703-306-5648 or the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>



Ted Kim
Primary Examiner
August 20, 2004

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